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(71)Applicant : SUMITOMO SPECIAL METALS CO  
LTD  
SUMITOMO METAL IND LTD

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(72)Inventor : MAKITA AKIRA  
IKEGAMI TAKASHI  
HIROZAWA SATORU  
KURIYAMA KAZUMASU

### (54) MANUFACTURE OF PERMANENT MAGNET POWDER

(57)Abstract:

PURPOSE: To suppress the generation of  $\alpha$ -Fe and improve magnetic characteristics by powdering thin stripe extremely quick-cooling alloy into grains which have the average grain diameter in a specific range, nitriding the powder in the N<sub>2</sub> and H<sub>2</sub> mixed gas and resin-bonding the powder as bond magnet.

CONSTITUTION: Melted Nd, Fe and V alloy is extremely quick-cooled by a Cu rotating roll which is 250mm in diameter and 30mm in width. The alloy thin strip is powdered mechanical powdering and powder with the average grain diameter of 200-300 $\mu$ m is provided. Then, nitriding is performed in the N<sub>2</sub> and H<sub>2</sub> mixed gas composed of H<sub>2</sub> by 50% mol ratio and N<sub>2</sub> by the rest of the percentage under the reduced pressure of 1atm at the room temperature. The powder is cooled and epoxy resin of 2.0wt.% is mixed. Then, compression molding is performed in the magnetic field of 10kOe with a pressure of 3.0tons/ cm<sup>2</sup> and resin-curing is performed at 150°C for one hour to manufacture a bonded magnet.

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